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REMARKS/ARGUMENTS

In reply to the Office Action mailed June 25, 2004, applicants respectfully request reconsideration of the subject application.

Applicants have amended paragraph [0035] to correct a grammatical error. Applicants have amended the claims to more particularly point out and distinctly claim their invention. No new matter is believed to have been introduced by these amendments.

By way of review, applicants' invention relates to an isomerization process using a dual catalyst system based on a combination of beta zeolite and MTW zeolite to achieve a near equilibrium amount of para-xylene (defined in the specification paragraph [0050] as at least 90-mol% approach to equilibrium para-xylene to total xylenes) using at least partial liquid phase conditions. The process using the dual catalyst system also obtains a high conversion of ethylbenzene, which is at least about 20-mol% (using catalyst A as a minimum reference on specification page 22 in comparison to catalyst C as a maximum reference). Thus, the combination of the two catalysts surprisingly results in the process of the present invention featuring the high ethylbenzene conversion of the beta zeolite along with the near equilibrium amount of para-xylene of the MTW zeolite (*Cf.* paragraph [0050]).

Claims 6 and 14 presently stand rejected under 35 U.S.C. §112 for indefiniteness as being unclear on the amount of hydrogenation metal component in the catalyst that is considered to be "essentially free." Applicants assert that this rejection has been rendered moot in light of the amendments to the claims that now appropriately incorporate a numerical maximum. Claims 6 and 14 as amended are now consistent with paragraph [0035] of the specification that indicates that the preferred catalyst is "essentially free" of hydrogenation metal, and further indicates that the metal when present in the catalyst is at least 0.1 mass-%. Thus, a catalyst with less than 0.1 mass-% is "essentially free" of hydrogenation metal. Accordingly, applicants assert that the claims as amended are now clear and respectfully request that the rejection of claims 6 and 14 for indefiniteness should be withdrawn.

Claims 1, 7, and 8 presently stand rejected under 35 U.S.C. §102(b) as being inherently anticipated by U.S. Patent No. 5,693,215 to Zones et al. The examiner states that the '215 patent discloses in the abstract and in column 6, lines 36-41 and 54-55 that a zeolite can be composited with another ZSM series zeolite and used in an isomerization process. Applicants traverse the rejection and assert that each and every element of applicants' claimed invention as amended is not taught in the cited reference.

Applicants note that the '215 patent discloses specifically a low-aluminum boron beta zeolite ["(B)beta"] and assert that the examiner cited passages merely invite experimentation with composited (B)beta zeolite and ZSM series zeolites. The '215 patent fails to disclose applicants' specific ZSM series zeolite, which is the ZSM-12 or MTW-

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zeolite. Moreover, the '215 patent fails to teach that a combination of beta zeolite and MTW-zeolite can obtain a near equilibrium amount of para-xylene along with a high conversion of ethylbenzene. Accordingly, applicants request that the rejection of claims 1, 7, and 8 for inherent anticipation be withdrawn because the '215 patent fails to teach every element of applicants' claimed invention.

Alternatively, claims 1, 7, and 8 presently stand rejected under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 5,693,215 to Zones et al. The examiner states that the product properties would be expected to inherently have a higher amount of para-xylene under similar conditions. Applicants traverse the rejection and assert that the '215 patent fails to teach, suggest, or provide motivation of applicants' invention as claimed and that a *prima facie* case of obviousness has not been established. Absent applicants' own disclosure, there is nothing in the cited reference that would teach or suggest applicants' invention as claimed. At best the '215 reference merely invites experimentation. And mere invitation to try experiments in compositing various ZSM series zeolites with various beta zeolites is not sufficient to establish obviousness. Applicants assert that the combined system of beta zeolite and MTW-zeolite results in both excellent ethylbenzene conversion and near equilibrium product para-xylene as shown in their Example III data on specification pages 22-23. Applicants' data is a surprising and unexpected result that provides a direct showing of non-obviousness. Accordingly, applicants request that the rejection of claims 1, 7, and 8 for obviousness be withdrawn because a *prima facie* case has not been established and because the applicants have shown unexpected and surprising results.

Claims 2-6, 9, and 12-16 presently stand rejected under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 5,693,215 to Zones et al. in view of U.S. Patent No. 3,856,871 to Haag et al. The examiner states that the '871 patent cures the deficiencies of the '215 patent by further disclosing: 1) the type of ZSM series zeolite mixed with the beta zeolite as ZSM-12, or MTW-zeolite; 2) isomerization conditions; 3) the essential absence of hydrogenation metal; and 4) the absence of hydrogen in the process. The examiner states that it would have been obvious to one of ordinary skill to have modified the process of the '215 patent by using the teaching of the '871 patent because extensive ethylbenzene disproportionation would be expected to result.

Applicants traverse the rejection of claims 2-6 and 12-16 as it applies to the claimed invention as amended and assert that a showing of unexpected and surprising results of the process of the present invention provides a direct showing of non-obviousness. See *United States v. Adams et al.*, 383 U.S. 39, 148 USPQ 479, 483 (1966) (illustrating where elements of invention known in prior art but not utilized together, if combination produces unexpected results different from the prior art, an invention may be patentable). Applicants' presently claimed scope is believed to be commensurate with their Example III data on specification pages 22-23. Applicants note that the '871 patent discloses in column 8 lines 24-46 that the typical ethylbenzene conversion obtained using a HZSM-12 would be 4.92%. Applicants themselves have found that MTW-zeolite provided only 2.2% ethylbenzene conversion when used alone as Catalyst D (see specification paragraph [0049]). However, applicants have also found that a dual system including beta

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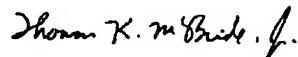
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zeolite provides significantly greater ethylbenzene conversion as shown on specification pages 22-23. Such a difference in ethylbenzene conversion is of great commercial value. Therefore, applicants request that the rejection of claims 2-6 and 12-16 for obviousness be withdrawn because applicants have shown unexpected and surprising results for a process based on a dual zeolitic catalyst system that provides substantially improved ethylbenzene conversion, i.e. greater than 20%, along with a near equilibrium para-xylene product.

Claims 10-11 presently stand rejected under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 5,693,215 to Zones et al. in view of U.S. Patent No. 6,440,886 to Gajda et al. The examiner states that the '886 patent cures the deficiencies of the '215 patent by further disclosing a surface modified beta zeolite. Applicants traverse the rejection and assert that the combination of references fails to teach, suggest, or provide motivation of applicants' invention as claimed and that a prima facie case of obviousness has not been established. Absent applicants' own disclosure, there is nothing in the cited references that would teach or suggest applicants' invention as claimed. At best the references merely invite experimentation. And mere invitation to try experiments in compositing various ZSM series zeolites with various beta zeolites is not sufficient to establish obviousness. Applicants assert that the combined system of beta zeolite and MTW-zeolite results in both excellent ethylbenzene conversion and near equilibrium product para-xylene as shown in their Example III data on specification pages 22-23. Applicants' data is a surprising and unexpected result that provides a direct showing of non-obviousness. Accordingly, applicants request that the rejection of claims 10-11 for obviousness be withdrawn because a prima facie case has not been established and because the applicants have shown unexpected and surprising results

It is respectfully submitted that, in view of the above amendments and remarks, the rejection of claims 1-8 and 10-16 should be withdrawn and that this application is in a condition for an allowance. Accordingly, favorable reconsideration and an allowance of all pending claims are courteously solicited. Should the Examiner have any questions regarding this application, please feel free to call the undersigned.

Respectfully submitted,



Thomas K. McBride, Jr.
Agent for Applicants
Reg. No. 51,015
(847) 391-2689 (phone)
(847) 391-2387 (fax)

James W. Hellwege
Registration No. 28,808
Washington Counsel (703) 205-8021

TMJ/gm